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ABSTRACT

This is an annotated bibliography of science and mathematics textbooks and juvenile trade books received in the Educational Materials Center between January, 1969 and February, 1970. The contents are divided into two major sections: Juvenile Literature, and Textbooks for Elementary and Secondary Schools. The first section includes only those books which have been favorably reviewed in at least two major professional journals or representative selective bibliographies. Areas covered are: History and Science; General Science; The Environment; Biology of Animals, Plant Life, and Health; The Earth and Space; Mathematics; Science Fiction; and Picture Books and Easy Reading. All textbooks received in the Center are included in the second section, and are listed by curriculum area: Mathematics; General Science; Biology; Chemistry; Earth Science; and Physics. Auxiliary texts are listed under Mathematics and Science. (EB)

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SCIENCE AND MATHEMATICS BOOKS FOR ELEMENTARY AND SECONDARY SCHOOLS

A Bibliography Based on the Acquisitions of the Educational Materials Center

February 1970

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National Center for Educational Communication

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SCIENCE AND MATHEMATICS BOOKS FOR ELEMENTARY AND SECONDARY SCHOOLS

A Bibliography from the Educational Materials Center

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SCIENCE AND MATHEMATICS BOOKS FOR ELEMENTARY AND SECONDARY SCHOOLS

This report concerns the science and mathematics textbooks and juvenile trade books received in the Educational Materials Center between January 1969 and February 1970. It has been prepared as a means of answering questions from educators about the nature and availability of new books of possible use in science and mathematics education programs in elementary and secondary schools in the United States. Inclusion of titles herein does not represent endorsement of them by the Office of Education.

The Center distributes only its own publications. Readers wishing to obtain materials listed here should do so through the usual commercial channels or from the publishers directly. For information about how to obtain other reports prepared in this Center, please refer to the inside back cover of this bulletin.

Section II of this list, "Textbooks for Elementary and Secondary Schools," was compiled by Eunice von Ende, Bibliographer, Biological Sciences Communication Project of the George Washington University, Washington, D.C., under contract OEC-3-8-080344-0037.

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I. JUVENILE LITERATURE

The compilers of this section have included only those science and mathematics books for children and young people which have been favorably reviewed in at least two of the major professional journals, or representative selective bibliographies reporting on such books.

The reviewing media and selection tools used in this sorting process in the Educational Materials Center are:

Appraisal, published by the Children's Science Book Review Committee, a nonprofit organization sponsored by the Harvard Graduate School of Education, Cambridge, Mass., and the New England Round Table of Children's Librarians; three times a year.

Booklist and Subscription Books Bulletin, published by the American Library Association, Chicago; semimonthly, September-July, once in August.

Bulletin of the Center for Children's Books, published by the University of Chicago Press; monthly except August.

U.S. Library of Congress. *Children's Books 1969.* 16 pp. Washington: Government Printing Office, 1970; annual.

Horn Book Magazine, published by Horn Book, Inc., Boston; six times a year.

Kirkus Reviews, published by the Kirkus Service, New York; semimonthly.

School Library Journal, published by the R. R. Bowker Co., New York; monthly as a separate magazine and as a monthly section of *Library Journal.*

HISTORY AND SCIENCE

Asimov, Isaac. *Great Ideas of Science.* Illus. by Lee Ames. Boston: Houghton, 1969. 140 pp. An overview with brief, undemanding discussions which require no analysis of data or formulas. (Grades 7–9)

Baylor, Byrd. *Before You Came This Way.* Illus. by Tom Bahti. New York: Dutton, 1969. Unpaged. This gently poetic text introduces the ancient Indians of the Southwest, with interpretations of the early cave paintings provided by an artist who is also an anthropologist. (Grades 1–4)

Branley, Franklyn M. *The Mystery of Stonehenge.* Illus. by Victor G. Ambrus. New York: Crowell, 1969. 51 pp. Summarizes the theories about the hows and whys of these massive pillars, acknowledging that the mystery may remain just that; many drawings and diagrams. (Grades 4–8)

Buehr, Walter. *Salt, Sugar, and Spice.* Illus. by author. New York: Morrow, 1969. 80 pp. Interesting anecdotes of history are included in the discussion of the ways in which salt and sugar are obtained, how spices in general stimulated trade and the development of nations, together with a list of spices, their characteristics and uses. (Grades 3–6)

Chase, Sara Hannum. *The First Book of Silver.* Illus. with photographs. New York: Watts, 1969. 87 pp. Tells of the discovery of silver, its artistic as well as practical uses, modern methods of mining, the increasing use of silver in industry, and the care of silver. Illustrations show objects made by skilled craftsmen. (Grade 4–up)

Clymer, Eleanor. *The Second Greatest Invention: Search for the First Farmers.* Illus. by Lili Rethi. New York: Holt, 1969. 117 pp. Reports on archaeologists' discovery of older cultures and agricultural communities and how farming developed and spread. (Grades 4–8)

Gould, Lillian. *Our Living Past.* Illus. by Donn Albright. Philadelphia: Lippincott, 1969. 192 pp. Describes the evolution of man: from the origin of life on this planet to the development of creatures capable of solving problems. (Grades 5–9)

Helfman, Elizabeth S. *Celebrating Nature: Rites and Ceremonies Around the World.* Illus. by Carolyn Cather. New York: Seabury Press, 1969. 165 pp. Useful information often difficult to obtain about how peoples of earliest times celebrated changes in the seasons; describes modern holidays and festivals related to them, with details of costumes worn and dances performed. (Grade 4–up)

Kettelkamp, Larry. *Haunted Houses.* Illus. by author. New York: Morrow, 1969. 94 pp. Eerie, documented accounts of houses haunted by ghosts or poltergeists with theories to explain these phenomena. (Grades 4–8)

Leacroft, Helen and Richard. *The Buildings of Ancient Rome.* Illus. by Richard Leacroft. New York: William R. Scott, 1969. 40 pp. Cross-section diagrams and full-color paintings give striking impressions of the Colosseum, Aqueduct, palaces, and temples. (Grades 4–8)

May, Julian. *Before the Indians.* Illus. by Symeon Shimin. New York: Holiday House, 1969. Unpaged. A brief, simply written account of the culture of people who lived long before the American Indians, interesting facts on how archaeologists obtained this information, and illustrations with details to supplement the text. (Grades 3–5)

Russell, W. M. S. *Man, Nature and History.* Illus. with photographs and diagrams. Garden City, N.Y.: The Natural History Press, 1969. 252 pp. This work (subtitle "Controlling the Environment") is one volume in the Nature and Science Library, reviewed by and published for the American Museum of Natural History. (Grades 7–9)

Silverberg, Robert. *Wonders of Ancient Chinese Science.* Illus. by Marvin Besunder. New York: Hawthorn, 1969. 126 pp. This book documents the 15 centuries when China was the unquestioned leader in science and technology and gave the world countless inventions. (Grade 6–up)

GENERAL SCIENCE

Berry, James. *Exploring Crystals.* New York: Crowell-Collier Press, 1969. 104 pp. Explains important concepts, describing experiments readily done at home. (Grades 7–9)

Halacy, Daniel S., Jr. *Experiments With Solar Energy.* Illus. with photographs and line drawings. New York: Norton, 1969. 147 pp. Directions and diagrams for making solar cookers, a solar-powered radio, a water heater, a model airplane that flies on sunshine, and other projects–an arresting documentation of how the sun's energy can be captured and put to work. (Grades 6–9)

Helfman, Harry. *Making Pictures Move.* Illus. by Willard Goodman. New York: Morrow, 1969. 48 pp. A guide to original activity in nine projects demonstrating the principles

of animation; uses such normally obtainable materials as shoebox, paper strips, pocket comb, and string. (Grades 3–5)

Hellman, Hal. *Defense Mechanisms: From Virus to Man.* Illus. with photographs and diagrams. New York: Holt, 1969. 150 pp. A lively discussion of the devices which living things, including human beings, use to protect themselves, and how these developed. (Grades 5–9)

Johnson, Chester. *What Makes a Clock Tick?* Illus. by Nathan Goldstein. Boston: Little, Brown, 1969. 73 pp. An explanation of what makes clocks run and how they are regulated for precise time-telling, along with suggestions for rebuilding a clock, all amply illustrated. (Grades 3–7)

Kahn, Ely Jacques. *A Building Goes Up.* Illus. by Cal Sacks. New York: Simon & Schuster, 1969, 63 pp. In simple, nontechnical language for readers of all ages who have watched buildings rise in their neighborhood, the author details the planning and teamwork required to complete a building. (Grades 5–9)

May, Julian. *Why the Earth Quakes.* Illus. by Leonard Everett Fisher. New York: Holiday House, 1969. 39 pp. Concise analysis is supported by explicit drawings and diagrams. (Grades 3–6)

Science Inquiry Project Series. Illus. by Peter P. Plasencia. Englewood Cliffs, N.J.: Prentice-Hall, 1969. The following four books have a common approach: they pose questions about the nature and properties of the matter under consideration, and describe experiments which can be performed at home in answer to the questions. (Grades 5–9)

Stone, A. Harris, and Dale Ingramson. *Crystals from the Sea: A Look at Salt.* 63 pp.

———. *Drop by Drop: A Look at Water.* 64 pp.

Stone, A. Harris, and Bertram M. Siegel. *Have a Ball.* 63 pp.

Stone, A. Harris, and Herbert Spiegel. *The Winds of Weather.* 64 pp.

Weiss, Harry. *Motors and Engines and How They Work.* Illus. with photographs and diagrams. New York: Crowell, 1969. 62 pp. Detailed explanation of how motors work, clear diagrams for building models (as toys or for actual work), as well as a discussion of the need for finding new sources of energy to run motors, including a few unlikely to occur to most readers. (Grade 4–up)

Zim, Herbert S., and James R. Skelly. *The How Things Work Series.* Illus. by Gary Ruse. New York: Morrow, 1969. 64 pp. (Grades 3–6)

Hoists, Cranes, and Derricks. Compares three types of lifting machines, with some attention to the skills needed to operate them.

Machine Tools. Describes and explains the functions of major manufacturing tools. Both books in this series are enhanced by labeled diagrams and illustrations.

THE ENVIRONMENT

Arnov, Boris, Jr. *Homes Beneath the Sea: An Introduction to Ocean Ecology.* Illus. with photographs. Boston: Little, Brown, 1969. 131 pp. A science teacher's presentation of how plants and animals are affected by currents, pollution, and parasites and other biological phenomena of the sea. (Grades 6–10)

Atwood, Ann. *New Moon Cove.* Illus. with photographs by author. New York: Scribner, 1969. Unpaged. Unusual photographs in color document the work of the sea in a small California cove. (Grade 4–up)

Chandler, T. J. *The Air Around Us.* Illus. with photographs and diagrams. Garden City, N.Y.: The Natural History Press, 1969. 156 pp. Subtitled "Man Looks at His Atmosphere," this is a volume of the Nature and Science Library, reviewed by and published for the American Museum of Natural History. (Grades 7–9)

Clark, Ann N. *Along Sandy Trails.* Photographs by Alfred A. Cohn. New York: Viking, 1969. 31 pp. A little Papago Indian girl and her grandmother walk the Arizona desert together, talking to each other about the flora and fauna, so the child "may know the desert and hold its beauty in her heart forever"; full-color photographs. (Grades 2–5)

Cole, William, compiler. *A Book of Nature Poems.* Illus. by Robert Andrew Parker. New York: Viking, 1969. 256 pp. For those who love nature as well as poetry, here are poems of bright days and deep nights, of the seasons, and of earth, skies, and the sea. (Grade 9–up)

Davies, Delwyn. *Fresh Water: The Precious Resource.* Illus. with photographs and diagrams. Garden City, N.Y.: The Natural History Press, 1969. 155 pp. Consideration, from a worldwide point of view, of the basic relationships between man and water, with attention to problems of pollution and purification; a volume in the Natural History Library, reviewed by and published for the American Museum of Natural History. (Grades 7–9)

Hogner, Dorothy C. *Birds of Prey.* Illus. by Nils Hogner. New York: Crowell, 1969. 132 pp. Basic information on the appearance, the habitat, and the feeding and nesting habits of 49 such dramatic creatures as hawks, eagles, falcons, and owls, with notes on the conservation efforts to save some which are particularly beneficial to man. (Grades 4–6)

Laycock, George. *America's Endangered Wildlife.* Illus. with photographs. New York: Norton, 1969. 226 pp. Discusses many rare and threatened mammals, birds, reptiles, and amphibians, along with the conservation efforts in their behalf. Full listing of prominent species, based on complete records periodically revised by U.S. Fish and Wildlife Service. Lists "Organizations Concerned with Endangered Wildlife," and books for additional reading. (Grade 5–up)

———. *Wild Refuge.* Illus. with photographs. Garden City, N.Y.: The Natural History Press, 1969. 151 pp. Poetic prose and striking photographs describe the development of the National Wildlife Refuges and how they have saved scores of species from extinction. Includes a partial list of the wildlife refuges, primarily those on which managers live. (Grade 5–up)

McClung, Robert M. *Lost Wild America: The Story of Our Extinct and Vanishing Wildlife.* Illus. by Bob Hines. New York: Morrow, 1969. 240 pp. Recounts the conditions of North American wildlife from the arrival of the first Europeans to the present time. (Grades 6–9)

Pringle, Laurence P., editor. *Discovering the Outdoors.* Illus. with photographs and diagrams. Garden City, N.Y.: The Natural History Press, 1969. 128 pp. This guide to investigating life in fields, forests, and ponds is a collection of articles from *Nature and Science,* the magazine for young readers edited by and published for the American Museum of Natural History. (Grades 5–7)

———. *The Only Earth We Have.* New York: Macmillan, 1969. 86 pp. A concise, honest

statement of man's abuse of his planet (the reduction of wildlands, pollution of the air, and use of insecticides) documented with telling photographs. (Grades 5–8)

Smith, Frances C. *The First Book of Swamps and Marshes.* Illus. with photographs. New York: Watts, 1969. 64 pp. A wealth of information about the different types of wetlands, their importance to man, and the plants and animals found in each. (Grades 6–9)

Van Leeuwen, Jean. *One Day in Summer.* Illus. by Richard Fish. New York: Random, 1969. Unpaged. A small child's enjoyment of a day at the beach with his grandfather is pictured in terms of his growing awareness of the shorelife around him. (PreS–Grade 2)

Wood, Frances E., and Florence D. *Animals in Danger: The Story of Vanishing American Wildlife.* Illus. with photographs. New York: Dodd, Mead, 1969. 181 pp. A discussion of our national neglect, the need to save vanishing species, and possible measures to accomplish this. (Grades 5–8)

BIOLOGY

Animals

Conklin, Gladys. *How Insects Grow.* Illus. by Girard Goodenow. New York: Holiday House, 1969. 127 pp. This companion volume to the author's *Bug Club Book* explains life cycles of a variety of insects and gives pointers to aid in identification. (Grades 4–6)

Earle, Olive L. *Praying Mantis.* Illus. by author. New York: Morrow, 1969. 48 pp. Life story of a Chinese mantis, familiar inhabitant of gardens in the United States, with along-the-way pictures of other members of the same ecology. (Grades 2–4)

Flanagan, Geraldine Lux. *Window into an Egg: Seeing Life Begin.* Illus. with photographs. New York: William R. Scott, 1969. 71 pp. Simple, precise language and effective photographs trace the development of the embryo to the chick and introduce young readers to the concept of reproduction. (Grades 4–6)

Freedman, Russell, and James E. Morriss. *How Animals Learn.* Illus. with photographs and diagrams. New York: Holiday House, 1969. 159 pp. An account of scientists' study of animals in nature and in laboratories to find how they learn, methods for training them, and ways to test the problem solving ability of the readers' pets. (Grades 1–5)

Freschet, Berniece. *Beaver on the Sawtooth.* Illus. by Matthew Kalmenoff. New York: Crowell, 1969. Unpaged. The account of a pair of beavers, who, as they build a dam, make their house, gather food, and raise a family of three, make particular contribution to the environment. (Grades 1–4)

Gans, Roma. *Hummingbirds in the Garden.* Illus. by Grambs Miller. New York: Crowell. 1969. 33 pp. This Let's-Read-and-Find-Out Science Book reports the life of the ruby-throated hummingbird, emphasizing the structure and physiology which give its unique characteristics. (Grades 2–3)

George, Jean Craighead. *The Moon of the Alligators.* Illus. by Adrina Znazanian. New York: Crowell, 1969. 40 pp. Simply told, interesting information on the life story of any alligator in the Everglades of Florida. (Grades 4–8)

_____. *The Moon of the Deer.* Illus. by Jean Zallinger. New York: Crowell, 1969. 40 pp.

Graphic account of a young deer's life in a Connecticut marsh, his rivalry with a fierce old buck bent on battle, and their place in the ecology of the region. (Grades 4–8)

Gray, Robert. *The Great Apes: The Natural Life of Chimpanzees, Gorillas, Orangutans, and Gibbons.* Illus. with photographs. New York: Norton, 1969. 144 pp. In a discussion of the general characteristics of the four different types of great apes and their customs and family life, the author dispels many myths surrounding these animals. (Grades 5–9)

Hawes, Judy. *What I Like About Toads.* Illus. by James and Ruth McCrea. New York: Crowell, 1969. 33 pp. Informative life story, from egg to adult, including interesting habits and aid to farmers. (K-Grade 3)

Hazelton, Elizabeth B. *Sammy, the Crow Who Remembered.* Photographs by Ann Atwood. New York: Scribner, 1969. Unpaged. Pet crow returns from the wilds to the cliff house by the sea, renewing old friendships with other animals and with children. (K–Grade 5)

Huntington, Harriet E. *Let's Look at Insects.* Illus. by J. Noel. Garden City, N.Y.: Doubleday, 1969. 60 pp. The author documents this picture storybook of structures and functions with her own photographs, one for each page of text. (Grades 3–6)

Jenkins, Marie M. *Moon Jelly Swims Through the Sea.* Illus. by René Martin. New York: Holiday House, 1969. 48 pp. A simple easy-to-read version of the life cycle of this typical jellyfish. (Grades 2–4)

Kaufmann, John. *Wings, Sun, and Stars: The Story of Bird Migration.* Illus. by author. New York: Morrow, 1969. 159 pp. An explanation of flyways, mechanical aspects of flight, biological clocks, and some important recent experiments to learn how direction is determined. (Grades 5–8)

Milne, Lorus and Margery. *The Nature of Animals.* Illus. by Thomas R. Funderburk. Philadelphia: Lippincott, 1969. 255 pp. An introductory treatment with comparative attention to the basic processes of animal life, relationship to other living things, and the balance of nature. (Grades 6–10)

Mizumura, Kazue. *The Emperor Penguins.* Illus. by author. New York: Crowell, 1969. 35 pp. Interesting facts about Emperor Penguins simply told and attractively illustrated for young readers. (Grades 2–8)

North, Sterling. *The Wolfling.* Illus. by John Schoenherr. New York: Dutton, 1969. 223 pp. Documentary novel of southern Wisconsin in the 1870's, where young Robbie Trent, with the encouragement of Thure Kumlien, Swedish-American naturalist, raises a wolf-dog cub to precarious adolescence. (Grade 5–up)

Ripper, Charles L. *Mosquitoes.* Illus. by author. New York: Morrow, 1969. 64 pp. Only female mosquitoes bite warmblooded creatures; this fact and the reason are among the detailed information on mosquitoes and how they have affected history; simply told and appropriately illustrated. (Grades 3–5)

Rounds, Glen. *Wild Horses of the Red Desert.* Illus. by author. New York: Holiday House, 1969. Unpaged. In conversational tone and in action-filled drawings, the author tells the story of the few scattered bands of wild horses that live far back in the Badlands. (Grade 3–up)

Schaller, George B., and Millicent E. Selsam. *The Tiger: Its Life in the Wild.* Illus. with photographs, drawings, and maps. New York: Harper, 1969. 71 pp. A study of animal behavior with the added interest of revelation of personal involvement in field research. (Grade 5–up)

Shepherd, Elizabeth. *Jellyfishes.* Illus. by Howard Berelson. New York: Lothrop,

1969. 64 pp. Little known facts about the many kinds of jellyfishes, suggestions to swimmers on how to avoid them, and directions for making a jellyfish model. (Grades 3–7)

Simon, Hilda. *Feathers: Plain and Fancy.* Illus. by the author. New York: Viking, 1969. 126 pp. Discusses the evolution of feathers, their structure, function, and source of color, and describes birds with unusually interesting plumage. (Grades 5–9)

Stevens, Carla. *The Birth of Sunset's Kittens.* Photographs by Leonard Stevens. New York: William R. Scott, 1969. 44 pp. Appealing photographs record the birth process of a pet cat's litter while a childlike text explains it. (All ages)

Sucksdorff, Astrid Bergman. *The Roe Deer.* Illus. by author. Translated from Swedish by Alan Tapsell. New York: Harcourt, 1969. Unpaged. Appealing photographs and informative text describe the life cycle of the Roe Deer beginning with the mating season in July through harsh Swedish winters when food is scarce, to birth in spring and the mother's care of the young until they can venture out alone. (Grade 3–up)

Villiard, Paul. *Reptiles as Pets.* Photographs by author. Garden City, N.Y.: Doubleday, 1969. 188 pp. A guide to the collecting, housing, and feeding of reptiles, for the young enthusiast. Attractive photographs by the author. (Grade 5–up)

Young, Wesley A., and Gloria D. Miklowitz. *The Zoo Was My World.* New York: Dutton, 1969. 128 pp. The former director of the Los Angeles zoo writes affectionately about his day-to-day experiences with animal friends. (Grades 3–5)

Plant Life

Baker, Jeffrey J. W. *The Vital Process: Photosynthesis.* Illus. by Patricia Collins. Garden City, N.Y.: Doubleday, 1969. 63 pp. A complex subject is made attractive in this description of key experiments as they occurred historically. (Grades 5–8)

Budlong, Ware T. *Performing Plants.* Illus. by Grambs Miller. New York: Simon & Schuster, 1969. 96 pp. Discusses varying patterns of plant behavior, including sensitive and carnivorous plants and symbiosis, with directions for simple at-home experiments for growth and demonstration. (Grades 5–9)

Edlin, Herbert L. *Plants and Man: The Story of Our Basic Food.* Illus. with photographs and diagrams. Garden City, N.Y.: The Natural History Press, 1969. 253 pp. This is a volume of the Nature and Science Library, reviewed by and published for the American Museum of Natural History. (Grades 7–9)

Fenten, D. X. *Plants for Pots: Projects for Indoor Gardeners.* Illus. by Penelope Naylor. Philadelphia: Lippincott, 1969. 128 pp. Detailed instructions for working with many kinds of indoor planting for home or school, including special projects for each month of the year. (Grade 4–up)

Huntington, Harriet E. *Let's Look at Flowers.* Illus. by J. Noel. Garden City, N.Y.: Doubleday, 1969. 60 pp. The parts of flowers are described and documented by the author's photographs. Information on their growth, care, and distribution is included. (Grades 3–6)

Selsam, Millicent E. *Peanut.* Photographs by Jerome Wexler. New York: Morrow, 1969. 48 pp. Arresting photographs, some in color, illustrate little known facts about each stage of development of this familiar food. (Grades 3–5)

Health

Calder, Ritchie. *The Wonderful World of Medicine.* Illus. with photographs and diagrams. Garden City, N.Y.: Doubleday, 1969. 96 pp. A revised, enlarged edition of

the earlier publication *From Magic to Medicine,* using a historical approach. (Grades 6–9)

Houser, Norman W., and Julius B. Richmond. *Drugs.* Illus. by Jane Bedno. New York: Lothrop, 1969. 48 pp. "Facts on Their Use and Abuse" are presented in capsule discussions of stimulants, depressants, hallucinogens, narcotics, and volatile chemicals. (Grades 5–9)

Rosenberg, Nancy, and Reuven K. Snyderman. *New Parts for People: The Story of Medical Transplants.* New York: Norton, 1969. 126 pp. Discusses in nontechnical language the problems of replacing wornout organs and parts, grafting skin, and the efforts to prevent the body's rejection of transplants, as well as the legal, social, and moral issues involved. (Grades 6–12)

Shay, Arthur. *What Happens When You Go to the Hospital.* Illus. with photographs. Chicago: Reilly & Lee, 1969. Unpaged. Clear pictures and large-print text give the details of Karen's tonsillectomy. (PreS–Grade 4)

Showers, Paul. *A Baby Starts to Grow.* Illus. by Rosalind Fry. New York: Crowell, 1969. 33 pp. This Let's Read-and-Find-Out Science Book begins when growth begins and carries on through birth. (K–Grade 3)

Terry, Luther L., and Daniel Horn. *To Smoke or Not to Smoke.* Illus. by Robert Quackenbush. New York: Lothrop, 1969. 64 pp. Terse and simple discussion of how the habit starts and of its often painfully tragic end, with many common questions answered along the way. (Grades 6–9)

THE EARTH AND SPACE

Anderson, Poul. *The Infinite Voyage: Man's Future in Space.* Illus. with photographs. New York: Crowell-Collier Press, 1969. 160 pp. Discusses man's beliefs about the heavens, and his experiments in charting the skies, from ancient times down to and including space flights; describes plans for lunar landings, and an imaginary Luna City. (Grades 7–12)

Angrist, Stanley W. *How Our World Came to Be.* Drawings by Enrico Arno. New York: Crowell, 1969. 75 pp. Ancient myths and current scientific theories are detailed as they relate to the creation of the universe and our solar system. Many photographs. (Grades 5–8)

Branley, Franklyn M. *The Milky Way: Galaxy Number One.* Illus. by Helmut K. Wimmer. New York: Crowell, 1969. 126 pp. Presents man's accumulated knowledge about our galaxy since the discoveries made by Ptolemy; the relatively new field of radio astronomy and the evolution of the Milky Way are also discussed. (Grade 6–up)

———. *A Book of Venus for You.* Illus. by Leonard Kessler. New York: Crowell, 1969. 72 pp. Explicit diagrams, charts, and simple prose help dispel some of the mysteries about the planet whose surface man has not yet seen. (Grades 2–4)

Coombs, Charles. *Spacetrack: Watchdog of the Skies.* Illus. with photographs and diagrams. New York: Morrow, 1969. 128 pp. A lively account of the complex Air Force organization which classifies and watches objects sent by man into space. (Grades 5–8)

Dwiggins, Don. *Bailout: The Story of Parachuting and Skydiving.* Illus. with photographs. New York: Crowell-Collier Press, 1969. 196 pp. Documents developments "from the early fall-breakers of the sixteenth century to tomorrow's parachutes for planetary exploration." (Grades 6–12)

Edson, Lee. *Worlds Around the Sun.* Illus. with photographs and diagrams. New York: American Heritage, 1969. 160 pp. This report on the "emerging portrait of the solar system" is a volume of the Smithsonian Library, a series edited under the direction of the Institution. (Grade 8–up)

Halacy, D. S., Jr. *Colonization of the Moon.* Illus. with photographs and drawings. Princeton, N.J.: Van Nostrand, 1969. 159 pp. Describes the moon, man's efforts to reach it, and the possibility of men living there, as well as the potential uses of the moon, including its function as a stepping stone to deeper space. (Grades 4–8)

Holder, William G. *Saturn V, the Moon Rocket.* Illus. by Martha Shields. New York: Messner, 1969. 190 pp. Traces man's dream of reaching the moon, from the Chinese in his chair to the teamwork required of individuals, governments, and industry in the launching of Saturn V, the Moon Rocket. (Grades 6–10)

Ross, Frank X. *Model Satellites and Spacecraft: Their Stories and How to Make Them.* Illus. with photographs and diagrams. New York: Lothrop, 1969. 159 pp. The purposes and history of 12 American satellites and spacecraft are explained, and directions are included for constructing models of each from simple materials. (Grades 5–9)

Valens, Evans G. *The Attractive Universe: Gravity and the Shape of Space.* Photographs by Berenice Abbott. Diagrams by the author with Philip Jaget. Cleveland: World, 1969. 187 pp. Discussion of gravity and its effects with attention to many ramifications of Newton's discovery. (Grades 7–up)

MATHEMATICS

Berger, Melvin. *For Good Measure: The Story of Modern Measurement.* Illus. by Adolph E. Brotman. New York: McGraw-Hill, 1969. 160 pp. Interesting and little known facts about the development of systems of measurement, the importance of precise measurement in science and industry, and the many ways that individuals unconsciously use measurement, all supplemented by clear drawings. (Grade 6–up)

Gardner, Martin. *Perplexing Puzzles and Tantalizing Teasers.* Illus. by Laszlo Kubinyi. New York: Simon & Shuster, 1969. 95 pp. Ridiculous riddles, unusual puzzles, and tricky questions to challenge the reader and provide hours of entertainment. (Grades 5–7)

Linn, Charles F. *Puzzles, Patterns, and Pastimes from the World of Mathematics.* Illus. by Lou Myers. Garden City, N.Y.: Doubleday, 1969. 136 pp. Puzzles and mathematical games, both ancient and modern, to test the skill of the reader and to stimulate him to develop similar ones, and above all to provide hours of entertainment. (Grades 5–8)

Whitney, David C. *The Easy Book of Multiplication.* Illus. by Sheila Granda. New York: Watts, 1969. 72 pp. The process of multiplication explained in simple language with examples to illustrate the facts. (Grades 3–5)

SCIENCE FICTION

Bova, Ben. *The Dueling Machine.* New York: Holt, 1969. 247 pp. In this story about a complex interplanetary society a young Star Watchman masters the problems of the machine whose socially therapeutic value has been negated by political opportunists bent on galactic villainy. (Grades 5–9)

Christopher, John. *The Lotus Caves.* New York: Macmillan, 1969. 154 pp. Set in 2068 A.D., when two moon-born boys escape from restricted life under a dome to solve the mystery of a missing moon explorer. (Grades 5–8)

Davies, L. P. *Dimension A.* Garden City, N.Y.: Doubleday, 1969. 206 pp. When an eminent scientist disappears unaccountably, his colleague, his nephew, and a young friend prove their suspicions that Dr. Maver has slid through another dimension into a coexistent world. (Grades 6–9)

Dickinson, Peter. *The Weathermonger.* Boston: Little, Brown, 1969. 216 pp. In a rousing fantasy-science-fiction hybrid set 5 years in the future, a brother and sister condemned as witches in a mysteriously confused Britain untangle knots caused by the premature awakening of Merlin. (Grades 5–9)

Harrison, Harry, editor. *Worlds of Wonder.* Garden City, N.Y.: Doubleday, 1969. 287 pp. This anthology includes 16 tales by such writers as Arthur C. Clarke, Paul Anderson, and Isaac Asimov. (Grades 6–10)

Norton, Andre. *Uncharted Stars.* New York: Viking, 1969. 253 pp. Murdoc Jern, hero of the author's earlier *Zero Stone,* continues his search for answers to the riddle of that powerful gem, as well as to the mystery of the mutant Eet, his weirdly attractive companion and mentor. (Grades 7–10)

Silverberg, Robert. *The Calibrated Alligator and Other Science Fiction Stories.* New York: Holt, 1969, 224 pp. Nine short stories whose contents include outerspace adventure, humor, and satire. (Grades 5–9)

PICTURE BOOKS AND EASY READING

Carrick, Carol and Donald. *Swamp Spring.* New York: Macmillan, 1969. Unpaged. Illustrations and prose convey the wonder, the beauty, and the mood of spring in a swamp. (K–Grade 3)

Chaffin, Lillie D. *Bear Weather.* Illus. by Helga Aichinger. New York: Macmillan, 1969. Unpaged. A satisfying story for young listeners and beginning readers who will enjoy the repetition in the story of the two brown bears as well as the amusing illustrations. (K–Grade 2)

Chenery, Janet. *Wolfie.* Pictures by Marc Simont. New York: Harper, 1969. 64 pp. An introduction to the arachnid family, which is genuinely funny both in the story and in the pictures of two little boys secreting their pet spider from a nosy little sister while they conduct their research on its habits. (K–Grade 3)

Garelick, May. *Look at the Moon.* Illus. by Leonard Weisgard. New York: William R. Scott, 1969. Unpaged. Compelling illustrations and vivid language create the mood for an imaginary journey to see if the moon shines "everywhere as well as here." (PreS–Grade 2)

Gretz, Susanna. *Teddy Bears 1 to 10.* Illus. by author. Chicago: Follett, 1969. Unpaged. A

counting book with simple situations, pictured in color, of an increasing company of teddy-bear toys. (PreS–K)

Hamberger, John. *The Call of a Loon.* New York: Four Winds Press, 1969. Illus. by author. Unpaged. A brief but graphic story, with scenic drawings, of the beautiful loon who seeks his mate in a lake wilderness inhabited by beavers, ravens, swans, moose, and other northern wildlife. (Grades 1–3)

Lexau, Joan M. *Archimedes Takes a Bath.* Illus. by Salvatore Murdocca. New York: Crowell, 1969. 56 pp. The simply told humorous story of an episode in the life of Archimedes, one of the world's greatest mathematicians. (Grades 3–5)

May, Julian. *Alligator Hole.* Illus. by Rod Ruth. Chicago: Follett, 1969. Unpaged. A simple text and watercolor paintings portray plant and animal life of the Everglades, with emphasis on the alligator, its need for water, and ecological importance. (Grades 1–4)

Selsam, Millicent E. *Hidden Animals.* Illus. with photographs. New York: Harper, 1969, 64 pp. Young readers will enjoy the fun of camouflaged animals and the simplicity of text in this "Science I Can Read Book." (K–Grade 3)

Shulevitz, Uri. *Rain Rain Rivers.* Illus. by author. New York: Farrar, 1969. Unpaged. Few words and evocative, action-filled drawings, washed in blues and greens and muted yellows, express the essence of water and its power over people and places. (K–Grade 3)

Silverstein, Alvin and Virginia. *A Star in the Sea.* Illus. by Symeon Shimin. New York: Warne, 1969. 40 pp. The detailed life story of Stella the starfish illustrated in color and black and white. (Grades 2–4)

Tresselt, Alvin. *It's Time Now!* Illus. by Roger Duvoisin. New York: Lothrop, 1969. Unpaged. Brightly colored illustrations will help young readers follow the changes each season brings in nature and life around them. (K–Grade 3)

II. TEXTBOOKS FOR ELEMENTARY AND SECONDARY SCHOOLS

The compiler of this section has included all recent textbooks in science and mathematics which were received in the Educational Materials Center in 1969 and early 1970. No attempt has been made to evaluate these publications. The listing is arranged by curriculum area; within each area, arrangement is alphabetical according to publisher.

MATHEMATICS

Allyn and Bacon, Inc., Boston.

First Course in Fundamentals of Mathematics, by Edwin I. Stein. Rev. ed. 1969. 404 pp. This edition is a complete textbook in contemporary arithmetic that attempts to meet the many and varied requirements of today's new programs in mathematics. The practice material is usually graded by difficulty. (Junior high school)

Harper & Row, Publishers, New York.

Motion Geometry, by Joe McKeeby Phillips and Russell E. Zwoyer, based on earlier editions written by staff members of the University of Illinois Committee on School Mathematics. 1969. Paperback. Teacher's edition for each.

Book 1. *Slides, Flips, and Turns.* 128 pp.
Book 2. *Congruence.* 160 pp.
Book 3. *Symmetry.* 160 pp.

This course grew out of an approach to geometry put forward by European mathematics educators in late 1963 – namely, geometry through isometric mappings. Intended for use both as a basal series and to supplement more standard type series. (Grade 7)

Stretchers and Shrinkers, Books 1, 2, and 3, by Peter G. Braunfeld, assisted by O. Robert Brown, Jr., L. Roland Genise, and others of the staff of the University of Illinois Committee on School Mathematics. 1969. Paperback. Teacher's edition for each.

Book 1. *The Theory of Stretching Machines.* 160 pp.
Book 2. *Advanced Topics in Stretching and Shrinking.* 160 pp.
Book 3. *The Theory of Fractions.* 160 pp.
Book 4. *Decimals.* By Max Beberman and William M. Golden. 128 pp.

Although designed as a basal series, the texts might be used as supplementary material at other grade levels because of the novel point of view. (Grade 8)

D. C. Heath and Company (A Division of Raytheon Education Company), Lexington, Mass.

New Ways in Numbers, Books 1–6, by Mary Hatzo and Sigmund A. Smith; Books 7–8, by Mary Alice Horrigan, with Sigmund A. Smith. 2d ed. 1969. Paging varies. Paperback. A modern mathematics program growing out of summer workshops in which classroom teachers prepared manuscript material. In this second edition arrangement and treatment of topics have been revised for improvement of presentation. Teacher's edition for each text. (Grades 1–8)

Mathematics: Modern Concepts and Skills. Book 3, by Clyde A. Dilley and Walter E. Rucker. 1969. 397 pp. Teacher's edition available. Supplementary materials include projectuals for overhead use. Third volume in a three-book program intended for use with students who have not been particularly successful in mathematics. (Grades 8–9)

Holt, Rinehart and Winston, Inc., New York.

Exploring Elementary Mathematics, by Mervin L. Keedy and others. 1970. Book 3, 378 pp.; Books 4–6, 410 pp. each. Basal texts in a new beginning series. (Grades 3–6)

Explorations in Mathematics, by Arthur J. Wiebe and James W. Goodfellow. Teacher's edition. 1970. 504 pp. Provides an additional mathematics program for students who have experienced difficulty in learning mathematics. (High school)

Pre-Algebra Mathematics, by Eugene D. Nichols. Rev. ed. 1970. 494 pp. Designed for a modern general mathematics course, or for a course to precede a modern course in algebra. (Grades 7–12)

Houghton Mifflin Company, Boston.

Modern School Mathematics: Structure and Use, Books 1–6 by Ernest R. Duncan and others. Rev. ed. 1970. Paging varies. This series, which is available in both graded and nongraded editions, attempts to incorporate the findings of research organizations and committees that have been working to adapt the content and method of modern mathematics to the elementary level. Supplementary materials include practice tapes, manipulative aids, diagnostic tests, workbooks, as well as annotated teacher's editions. (K–Grade 6)

Modern School Mathematics: Structure and Method, by Mary P. Dolciani and others. Rev. ed. 1970. Courses 1 and 2. Paging varies. The authors have been guided by their belief that one learns mathematics by doing mathematics so that a proper balance between theory and practice is essential. Consideration has been given to the work of various persons and committees conducting experimental mathematics programs. Teacher's editions available along with other supplementary materials. (Grades 7–8)

Modern Algebra: Structure and Method, by Mary P. Dolciani and others. Rev. ed. 1970. Book 1, 596 pp; Book 2, 644 pp. Basal texts for first- and second-year algebra courses. Supplementary materials include overhead visuals for Book 1, and programed practice self-study workbooks for each text. (Grades 9–10)

Modern School Mathematics: Geometry, by Ray C. Jurgensen and others. 1969. 660 pp. Algebra and geometry are integrated in a chapter on number properties in certain postulates, coordinate geometry, and transformations. Plane geometry is extended to solid geometry throughout the text to demonstrate spatial relationships. In addition to an annotated teacher's edition, progress tests, and a solution key, there is a programed practice exercise book by Persis O. Redgrave and James J. Roberge keyed to the text. (Grades 9–12)

Modern Introductory Analysis, by Mary P. Dolciani and others. 1970. 668 pp. A precalculus text with major emphasis on the study of functions. (High school)

School Mathematics: Geometry, by Richard D. Anderson and others. 1969. 716 pp. Considered by the publisher as a highly teachable version of School Mathematics Study Group *Geometry.* Unifies plane and space geometry. Contains detailed discussions on logic, language, and deductive systems to help students realize that mathematics has a structure that transcends a collection of formulas and diagrams. (Grades 9–12)

Patterns in Mathematics, by George F. Edmonds and others. Rev. ed. 1970. 310 pp. Designed as an integrated full-year course to stimulate students of limited interest and ability. (High school)

Modern Trigonometry, by William Wooton and others. Rev. ed. 1969. 423 pp. Sets, functions, and number systems are used to present trigonometry in the context of modern mathematics. There is a teacher's edition, and other supplementary material. (Grades 9–12)

Modern Coordinate Geometry: A Wesleyan University Curricular Study. Supported by the National Science Foundation. 1969. 446 pp. Algebra is fused with geometry through a small number of powerful axioms which are then used in providing traditional theorems of geometry. A commentary and solution key is provided for the teacher's use only. This text for high school honors classes is an experiment in the initial presentation of formal geometry as a subject of current, as well as of historical, mathematical interest. (Grades 9–12)

William H. Sadlier, Inc., New York.

Contemporary Mathematics Readiness, by Rose Anita McDonnell and others. Teacher's edition. 1969. 105 pp. Paperback. An attempt to meet the goal of looking beyond immediate needs and preparing the child to live in the ever-expanding world of science. (K–Grade 1)

Mastering Mathematics Series, edited by George Grossman. 1969. 144 pp. each. Paperback.

Adventures in Mastering Mathematics, by Evelyn Farmer and Sophie Sussman. Book A.

Progress in Mastering Mathematics, by Blanche Gladstone and Eva L. Pollack. Book B.

Experiences in Mastering Mathematics, by Sara P. Davis and Doris Hadler. Book C.

Challenges in Mastering Mathematics, by Matthew Scaffa. Book D.

Explorations in Mastering Mathematics, by Otto S. Schmidtmann. Book E.

A new skills development program for the average and slow learner, this series develops concepts with a minimum dependence on reading ability; grade markings do not appear on the cover, allowing for flexible grade use. Annotated teacher's edition for each text. (Grades 2–6)

Sadlier Contemporary Mathematics, Books 7, 8, and 9, by Helen K. Halliday and others. Teacher's edition. 1969. Paging varies. Paperback. These editions published in 1969 are part of a series designed to provide a modern mathematics course for the average student. Manual and key to teacher's editions prepared by Joseph Gehringer. (Grades 7–9)

Scott, Foresman and Company, Glenview, Ill.

Mathematics: Concepts, Applications. Second Course, by Henry Van Engen and others. Teacher's edition. 1969. 672 pp. Designed to reach and teach the majority of students. This is the eighth book in the publishers Basic Mathematics Program series. (Grade 8)

The L. W. Singer Company, Inc. (a subsidiary of Random House, Inc.), New York.

Sets, Numbers, and Systems, by Patrick Suppes and others. Book 1. Singer Mathematics Program. 1969. 438 pp. This volume is intended to help the student explore important mathematical ideas. Concepts discussed include number systems, geometry, functions, logic, probability, statistics, and the mathematics of electricity. Teacher's edition available. (Grade 7)

John Wiley & Sons, Inc., New York.

Three textbooks in the Wiley Mathematics Program, under the editorial direction of Roy Dubisch and Isabelle P. Rucker.

Mathematics I, by Vernon R. Hood and others. 1969. 529 pp. A text that aims to involve students in discovery and learning by doing, and to encourage critical analysis and inquiry on the student's part. (Grade 7)

Mathematics II, by Faye A. Strouts and others. 1969. 437 pp. This text attempts to develop in detail the notion of mathematics as a language, and provides further activities to develop and enhance geometric intuition. (Grade 8)

Algebra, by John E. Yarnelle and others. 1969. 470 pp. Covers such topics as the real number system, polynomials, equations and inequalities, problem solving, and mathematical sentences. (Grade 9)

Follett Educational Corporation, Chicago.

Study Lessons in General Science, by Jesse Gross and Seymour Kopilow. 1969. Paperback.
The Earth and Its Atmosphere. 64 pp.
How Life Is Maintained. 64 pp.
Substances Around Us Change. 62 pp.
Work and Energy. 64 pp.
Four booklets in an eight booklet series designed as a flexible general science course that allows students with learning problems to grasp junior high school science concepts. Booklets may be used individually or in any combination or sequence to meet curriculum guidelines. (Junior high school)

D. C. Heath and Company (a division of Raytheon Education Company), Lexington, Mass.

Patterns and Processes of Science: Laboratory Text No. 1. 1969. 416 pp.

Patterns and Processes of Science: Laboratory Text No. 2. 1969. 371 pp.

These two books in a series of three have been developed by Fred T. Weisbruch, J. C. W. Brock, and Donald W. Paulsen to teach science through the performing of experiments in the laboratory. They are the results of a pilot program in support of a "new science curriculum." (Grades 7–9)

Holt, Rinehart and Winston, Inc., New York.

The Holt General Science Program

Science 1: Observation and Experiment, by Ira C. Davis and others. Rev. ed. 1969. 424 pp.

Science 2: Experiment and Discovery, by Ira C. Davis and others. Rev. ed. 1969. 440 pp.

Complete revision of these two texts resulted from the author's belief in the need for a text that can be understood by all students, not just those with superior aptitudes and abilities. Supplementary aids are available. (Grades 7–9)

SPECIFIC SCIENCES

Biology

D. C. Heath and Company (a division of Raytheon Education Company), Lexington, Mass.

Biology, by Elsbeth Kroeber and others. 2d ed. 1969. 646 pp. The text is divided into 11 units, to meet the needs of different schools and of various groups within any single school. The units vary in length, difficulty, and appeal to different kinds of students. Supplementary aids include a teacher's manual, a workbook and laboratory manual, and comprehensive tests. (Grade 7–up)

Holt, Rinehart and Winston, Inc., New York.

Living Things, by Frederick L. Fitzpatrick and others. Rev. ed. 1970. 468 pp. A basal text for a life science program that aims to present biological concepts simply and concisely. (Junior or senior high school)

Modern Biology, by James H. Otto and Albert Towle. Rev. ed. 1969. 787 pp. Major revision of materials for this high school biology program. Features molecular and cellular biology, reproduction, genetics, classification, microbiology, ecology. Teacher's guide correlates text, laboratory, and testing program. Other aids include laboratory investigations, transparencies, and film loops. (Senior high school)

Modern Life Science, by Frederick L. Fitzpatrick and John W. Hole. Rev. ed. 1970.

584 pp. Designed to provide a wide variety of activities which encourage the learner to discover his own evidences and to make generalizations from them. (Senior high school)

Chemistry

Allyn and Bacon, Inc., Boston.

Elements of Chemistry, by Paul J. Boylan and Philip B. Weld. Rev. ed. 1969. 696 pp. Text is intended as a thorough introduction to general chemistry for the college-bound student. Emphasis is on the fundamental theories and principles on which modern chemistry rests. (Grades 7–12)

Harper & Row, Publishers, New York.

Chemistry, by Glenn H. Miller. 1969. 418 pp. Designed for nonscience liberal arts students who wish to broaden their general education. Topics chosen to give the reader insight into the modern theories of chemistry, supply him with the basic concepts, and acquaint him with the methodology of the discipline. (Senior high school)

Houghton Mifflin Company, Boston.

Chemistry: An Investigative Approach, by F. Albert Cotton and Lawrence D. Lynch. 1970. 660 pp. Based on the original Chemical Education Material Study textbook, *Chemistry–An Experimental Science*, this text places emphasis on the activities of experimentation and observation. (Senior high school)

Earth Sciences

Holt, Rinehart and Winston, Inc., New York.

Modern Earth Science, by William L. Ramsey and others. Rev. ed. 1969. 550 pp. Annotated teacher's edition. Major revision reporting on the characteristics and forces of the earth. Using an interdisciplinary approach, this program presents the earth as a complex body whose form and development can be understood as a result of the operation of basic processes. Also available are laboratory experiments and other supplementary aids to the text. (Grade 7–up)

Charles E. Merrill Publishing Company, Columbus, Ohio.

Focus on Earth Science, by Margaret S. Bishop and others. 1969. 534 pp. Study of the planet Earth–its features, its forces, its place in the solar system, and its place in the universe. An annotated teacher's edition and solutions manual, as well as test booklets, are available. (Junior high school)

Silver Burdett Company (a division of General Learning Corporation), Morristown, N.J.

Earth Science, by F. Martin Brown and others. 1970. 566 pp. Uses an interdisciplinary approach to the study of geology, oceanography, meteorology, and space. (Junior high school)

Physics

Allyn and Bacon, Inc., Boston.

Physics: Its Methods and Meanings, by Alexander Taffel. 1969. 566 pp. Central theme of the text is the development and evolution of the two fundamental concepts of matter and nature. Aids include teacher's manual, laboratory manual, and test booklet. (Grades 7–12)

Holt, Rinehart and Winston, Inc., New York.

Foundations of Physics, by Robert L. Lehrman and Clifford Swartz. 2d ed. 1969. 758 pp. Stresses fundamental and theoretical principles of physics. Text is closely oriented to an open-ended laboratory manual written especially for this approach. This edition also features biographical material on important physicists in history. Teacher's guide is available. (Senior high school)

Silver Burdett Company (a division of General Learning Corporation), Morristown, N.J.

Physics, by Irwin Genzer and Philip Young-

ner. 1969. 762 pp. The teacher's editions of the student text and the integrated laboratory manual. This program combines ideas of the Physical Science Study Committee and experiences of the authors. (Senior high school)

AUXILIARY TEXTS

Mathematics

Addison-Wesley Publishing Company, Inc., Menlo Park, Calif.

Elementary Enrichment Mathematics Series: Coordinates, Books a, b, c, by Stephen P. Diliberto and Glenn E. Housh. 1969. Paging varies. Paperback. Teacher's edition for each. First three in a series of five pamphlets that presume no special mathematical background on the part of the student. Therefore, they may be used to supplement any basal mathematics series. This is the outgrowth of more than 5 year's research by members of the University of California Elementary School Science Project. (Grades 2–6)

Trigonometry, by Elbridge P. Vance. 2d ed. 1969. 256 pp. Paperback. Presentation is intended both for those students who wish to obtain an insight into mathematics as it is applied in the world today, and those who wish to prepare themselves for further study in mathematics or other related fields. (High school)

Doubleday & Company, Inc., Garden City, N.Y.

Exploring Mathematics Series

A Question of Accuracy: Exploring Mathematics, by Arthur G. Razzell and K. G. O. Watts. 1969. 46 pp.

Three and the Shape of Three: Exploring Mathematics, by Arthur G. Razzell and K. G. O. Watts. 1969. 47 pp.

Two of several books intended for use as supplementary materials for those who like mathematics and want to investigate some of the more interesting and less frequently studied aspects of the subject. There is a Classroom Guide for each prepared by Charles F. Linn. (Grades 5–6)

D.C. Heath and Company (a division of Raytheon Education Company), Lexington, Mass.

Arithmetic for College Students, by Franklin D. Wright. 1969. 310 pp. Although written primarily for college students, the publisher states the text qualifies for use with high school students and contains enough material for a semester course of three or more units, depending on the goals of the instructor and the abilities of the students. The book has been tested in preliminary form at a number of colleges. (Grade 12)

Practice in Mathematics: Computation, Concepts, Reasoning. Duplicating Masters for Practice Worksheets, by Sigmund A. Smith. 1969. Eight booklets, 48 pp. each. These duplicating masters have been designed to help pupils extend their ability to think mathematically by providing extensive practice on concepts, computational skills, and reasoning. The practice materials can be used at the traditional grade levels, or at any level, to supplement the variety of contemporary mathematics programs now encompassed in the pre-high school years. Each master can produce 50 or more copies. (Grades 1–8)

Highlights for Children, Inc., Columbus, Ohio.

Fun With Numbers, Lines and Angles, by Ali R. Amir-Maiz and Donald H. Menzel. Highlights Handbook. 1969. 33 pp. A collection of mathematical games, tricks, puzzles, and activities to be used as supplementary learning material. (Grades 1–4)

Holt, Rinehart and Winston, Inc., New York.

Trouble-Shooting Mathematics Skills, by Allen L. Bernstein and David W. Wells. Rev. ed. 1969. 473 pp. Designed to involve the student in his own remedial program and to bridge the gap between modern and traditional treatments of fundamental skills. Places emphasis on the techniques of problem solving, mental arithmetic, and estimating reasonable answers. An annotated teacher's edition is available. (Grades 7–12)

Houghton Mifflin Company, Boston.

Fibonacci and Lucas Numbers, by Verner E. Hoggatt, Jr. Mathematics Enrichment Series. 1969. 92 pp. Paperback. Treats geometric applications of Fibonacci numbers, as well as many relationships between those numbers and the similarly defined Lucas numbers. Prerequisites: 1 year of geometry, 2 years of algebra. (Grades 9–12)

Introduction to Computer Programming, by Rudd A. Crawford, Jr., and David H. Copp. 1969. 154 pp. Paperback. A workbook intended to teach the writing of programs in the machine language of an imaginary digital computer. (Senior high school)

Limits: A Transition to Calculus, by O. Lexton Buchanan, Jr. 1970. 188 pp. Paperback. With this text students may develop an understanding of the concept of limit as a preparation for work in calculus. (Senior high school)

Modern Mathematics for Achievement; First, and Second Courses, by Marian Cliffe Herrick and others. Rev. ed. 1970. 46 pp. each. Paperback. Two 1-year general mathematics texts for low achievers. Each course is divided into eight booklets. The second course of this program may be taught in sequence with the first course or independently. There are teacher's editions for each booklet, and a teacher's guide for each course. Tailored to the interests and abilities of students whose mathematical aptitude is low or whose background in the subject is meager. (Junior high school)

McGraw-Hill Book Company, Webster Division, St. Louis, Mo.

Building Arithmetic Skills, by William F. Hunter and Pauline L. LaFollette. The Learning Skills Series: Arithmetic. 1969. 188 pp. Paperback. A series intended for use by mentally retarded and brain-damaged learners. Teacher's manual accompanies the pupil text. (Intermediate grades)

South-Western Publishing Company, Cincinnati, Ohio.

Mathematics Skill Builder. Practical exercises and tests, shortcuts, self-improvement scoring, by Loyce C. Gossage and Milton Briggs. 3d ed. 1969. 162 pp. Paperback. Designed for students wanting to attain accuracy and build speed in the fundamental operations of addition, subtraction, multiplication, and division. (High school)

Science

Globe Book Company, Inc., New York.

Pathways in Science-2, by Joseph M. Oxenhorn. 1969. Paperback.
Built for Living. 179 pp.
Chemistry of Mixtures. 147 pp.
Matter and Energy. 150 pp.
Oceans of Air and Water. 180 pp.
Series designed for the slow learning high school student reading on fifth grade level. The course is intended to develop a love of science as a feeling of accomplishment on the part of the student. Teacher's guides available for each. (Junior or senior high school)

Hartford Public Schools, Hartford, Conn.

Hartford Instructional Packet. 1969. Paperback.

Introduction to Cells, by Richard Katz. (Pilot) 27 pp. (Junior high school)

Magnets, by Elinor Cohen. (Pilot) 53 pp. (Elementary grades)

Our Solar System, by Fred Maher. (Pilot) 18 pp. (Junior high school)

Rocks, by Karen A. Drumm. 40 pp. (Elementary grades)

Simple Machines, by Elizabeth M. Curtin. 53 pp. (Junior high school)

Three Classes of Rocks: Sedimentary, Igneous, Metamorphic, by Michael Bresica. (Pilot) 35 pp. (Junior and senior high school)

These packets are developed as a means of helping students "learn to learn." They require each student, within varying limits, to follow directions, to make decisions, and to pace himself, so that the teacher is free to provide more individualized assistance.

Silver Burdett Company (a division of General Learning Corporation), Morristown, N. J.

21st Century Monografics 1969. 64 pp. each. Paperback.

No. 1. *Moon Probes,* By John F. McCauley.
No. 2. *Life Beyond Earth,* by Richard S. Young.
No. 3. *Cosmic Debris,* by Carleton B. Moore.
No. 4. *Exploring The Planets,* by Krafft A. Ehricke and Betty A. Miller.

Designed to enrich the content of science programs. (Junior or senior high school)

Albert Witman and Company, Chicago.

The Working-With-Science Series, by E. A. Catherall and P. N. Holt. 1969. 48 pp. each. Four individual titles: *Working With Light, —Magnets, —Sounds, —Water,* which the publisher recommends for the slow reader because of high interest and low vocabulary levels. (Grade 4—up)

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REQUESTS FOR REPORTS

Single copies of reports prepared in the Educational Materials Center (EMC) are sent without charge to schools, libraries, and materials centers upon request. Bibliographic issues announce and describe recent materials received and inform educators in the United States and abroad as to the availability and relation of such materials to the curriculum.

Representatives of schools or libraries wishing to receive future reports as they appear should write to the Educational Materials Center, U.S. Office of Education, Washington, D.C. 20202. A zip code is required for all Office of Education mailing lists.

Requests from individual teachers and librarians wishing *single* copies of specific EMC reports should be addressed to the Publications Distribution Unit, U.S. Office of Education, Washington, D.C. 20202. Be sure to give the OE number as well as the title. If prices are indicated, multiple copies may be purchased from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Some recent titles of reports currently available are:

Literature for Disadvantaged Children, OE–37019. Reprinted from *The Education of Disadvantaged Children,* August 15, 1966 (20 cents)

Textbook Classification Scheme, OE–14031-40, July 1967

Adult Basic Education, OE–14031–41, September 1968 (30 cents)

Books Related to Compensatory Education, OE–37045, February 1969 (50 cents)

Books Related to the Social Studies in Elementary and Secondary Schools, OE–31011, May 1969 (35 cents)

Reference Tools 1968-1969, OE–10063, July 1969 (25 cents)

Books Related to English Language and Literature in Elementary and Secondary Schools, OE–30024, October 1969 (35 cents)

Year-Round Book Fair, OE–33048. Reprinted from the June 1968 issue of *American Education.*

The Educational Materials Center at the Federal City College, OE–10057

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